We claim:

1. A shaped metal fixed-bed catalyst, comprising at least one catalyst alloy of a catalyst metal and an extractable alloying component, wherein the catalyst is free of pure catalyst metal and alpha-aluminum oxide, has a total pore volume of 0.1 to 0.6 ml/g and a bulk density lower than 2.2 kg/l, and is activated in an outer layer having a thickness of 0.1 to 2.0 mm by at least a partial extraction of the extractable alloying component from the catalyst alloy.

2. The shaped metal fixed-bed catalyst according to claim 1, wherein the catalyst is free of gamma-aluminum oxide.

3. The shaped catalyst according to claim 1, wherein the catalyst metal is a member selected from the group consisting of nickel, cobalt, copper, iron, and mixtures thereof, and the extractable alloying component is a member selected from the group consisting of aluminum, zinc, and silicon, and wherein a ratio by weight of catalyst metal to extractable alloying component is from 30:70 to 70:30.

4. The shaped catalyst according to claim 2, further comprising a dopant, in an amount up to 15 wt.% with respect to the weight of catalyst alloys, selected from the group consisting of chromium, iron, cobalt, tantalum, molybdenum, titanium, and mixtures thereof, provided as a promoter.

5. A process for preparing the activated metal fixed-bed catalyst according to claim 1, comprising:

mixing at least one alloy powder of a catalyst metal and an extractable alloying component which is free of a pure catalyst metal with a high molecular weight polymer to form a shapable mixture,

shaping the mixture to produce a freshly prepared shaped article,

thermally treating said article at temperatures between 100 and 300°C to remove the polymer through decomposition,

calcining the freshly prepared shaped article at a temperature of less than 850°C, and

activating the shaped article by extracting at least a portion of the extractable alloying component with an alkaline solution,

wherein the high molecular weight polymer is a polyoxymethylene homopolymer or copolymer with a melt volume index MVI (according to DIN ISO 1133, measured at 190°C with a load of 2.16 kg) from 1 to 50.

6. The process according to claim 5, wherein the MVI is in the range from 5 to 13.

7. The process according to claim 5, wherein the MVI is in the range from 6 to 9.

8. The process according to claim 5, wherein the catalyst has an average particle size of 30 to 120μm, and is added to the polyoxymethylene in an amount of 5 to 100 wt.% with respect to the amount of catalyst in the mixture.

9. The process according to claim 8, wherein the high molecular weight polymer decomposition is in the presence of an acid medium at temperatures between 100 and 300°C, and wherein an approximately constant rate of decomposition of 6 to 10 grams of formaldehyde per kilogram of polyoxymethylene used per minute is set by controlling a rate of heating and/or a rate of addition of the acid medium.

10. The process according to claim 8, wherein the mixing comprises kneading the catalyst alloy and polymer in the form of powders at 180°C to 250°C to produce the shapeable mixture.

11. The processing according to claim 10, wherein the catalyst alloy and polymer are kneaded so as to maintain the primary particle size distribution of the alloy substantially unchanged.

12. The process according to claim 10, wherein the shaping is by extrusion, tabletting or compacting.

13. The process according to claim 8, wherein said polymer and said metal alloy are fed separately to an extruder and are mixed together in said extruder.

14. The processing according to claim 8, wherein the decomposition of the polymer is accomplished by controlled heating to decompose the polyoxymethylene to substantially

formaldehyde, and to drive the formaldehyde out of the article without cracking said article, by vigorous release of gaseous decomposition products.

15. The process according to claim 14, wherein the polymer decomposition of the shaped article is accomplished by the shaped article being first heated to about 100°C, and then heated to about 300°C in a controlled manner to avoid destroying the article over a time period of 170 to 200 minutes, and thereafter heating to about 800°C.

16. The process according to claim 9, wherein the activating the shaped article by extracting the extractable alloying component comprises treating the articles with a 20 wt. % solution of alkali at a temperature of 80°C for 120 minutes.